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THE

RELATION OF OUR PUBLIC SCHOOLS

TO THE

DISORDERS OF THE NERVOUS SYSTEM.

BY

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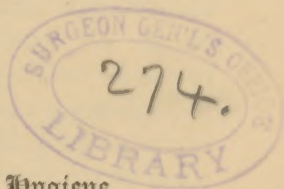
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HYGIENE ASSOCIATION TO THE TEACHERS IN THE PUBLIC SCHOOLS.

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THE RELATION OF OUR PUBLIC SCHOOLS TO THE DISORDERS OF THE NERVOUS SYSTEM.

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A LIBERAL education in the sense in which the term was used when the Boston public school system was begun, is no longer possible. In the place of knowing everthing worth knowing in his day, as was said of Lord Bacon, the most highly educated man of the present time does not know the whole of his own profession. The occupations of mankind have become so enormously diversified that no school can fit its pupils directly for any considerable number of them; so that general training, rather than the acquirement of learning, has become more and more the purpose of our best systems of public education. Committing to memory page after page of an increasing variety of textbooks, largely for the sake of brilliant competitive examinations, beside overtaxing the brain, has been proved to be, as a means of educating children, far inferior to methods by which the observation, reflection, and judgment are trained. When the youth of either sex leaves school to seek a place in the busy world, the question asked him or her is "What can you do, how well can you do it, and how will your strength hold

out?" not "What do you know, can you spell words that would puzzle a lexicographer, or do sums, as it is called, beyond the powers of a bank cashier?"

As a consequence, the courses of study which best develop the mind and best prepare the pupil for the duties of life, and also least injure the physical health, are gradually taking the place of those which most disregard the welfare of the body and the mind. I doubt very much whether the great change which has quietly taken place in this respect in our Boston schools, more especially in the last few years, including the addition of manual and industrial education and object teaching, is at all appreciated by the community, or fully understood by those who most criticise our public school system.

There is another much more important change which has been slowly going on for several generations, and more rapidly during the last quarter of a century, which should be taken into full consideration at the beginning of our inquiry into the question of the relation of our public schools to disorders of the nervous system, namely, a change in the mental and physical type of the race. For fifty years or more, the fact has been observed and remarked upon in this country, often in exaggerated terms, that the Anglo-American has become taller and thinner, with less appearance of robust physical health, with a more sensitive nervous organization, and with an increased intolerance of stimulants of all kinds.

At a recent meeting of the British Association for the Advancement of Science in Bristol, it was generally agreed by the large number of members of the associa-

tion who took part in the discussion, that a similar change was taking place in England, — that the John Bull of Nelson's time is not the Englishman of to-day. The same tendency has also been noted in Germany.

In a general way, it may be said that with some modifications due to climatic and social influences, this development of the nervous type of character bears a direct relation to the intellectual and industrial growth of the people. It is more marked in the United States than in Europe, and much more pronounced in Massachusetts than in any other part of our country. We see more of it, living in a land of such mental activity that twenty thousand patents are granted each year, in a state where there is a school to each three hundred of the population, and in a city whose public library is more consulted than the British Museum in London, a city of ten times the size of Boston.

The enormous increase in the popular knowledge of a few of the laws of health, the immense growth in wealth in all parts of the world, and the vast spread of the principles of humanity and philanthropy in dealing with those portions of society who are unable to protect and provide for themselves, have resulted in such an improvement in the sanitary conditions of our towns that the pestilential diseases are fast disappearing. There is, also, an immediate diminution in the mortality from all filth diseases, and a decrease in the average death-rate, with a proportionate saving of life.

Now those diseases which are chiefly affected when death-rates are lowered by a wise enforcement of the principles which lie at the foundation of an improved public health, are diarrhœal diseases and infection

diseases, which cause by far the greatest number of deaths in children under five years of age; typhoid fever from which about one-half of the deaths occur in or before early manhood and womanhood; and pulmonary consumption, a disease in which nearly forty per cent of the mortality falls upon persons between the ages of fifteen and thirty. But just as many people must die, and if more individuals live, by reason of our improved methods of living, beyond infancy and the early ages of life, just so many more will die of old age and the diseases peculiar to older people, and the death-rates will in time be equalized. That is to say, our efforts to improve the welfare of the human race have diminished the sources of death from one set of causes, and have proportionately increased them from another series of causes. If a person's chances of death from cholera infantum and typhoid fever are diminished, there is, of course, greater probability of his living to the full term of life until death by old age, but at the same time there are more chances of his becoming a nervous invalid, or dying with apoplexy. It is easy to see, therefore, that with fewer deaths from the plague, cholera, diarrhoeal diseases, scarlet fever, typhoid fever, pulmonary consumption, there will also be a higher mortality from Bright's disease, apoplexy, paralysis, cancer, and those diseases of the brain and nervous system which are common to the later years of life. In other words, simply from our better habits of living, our increased cleanliness, our purer water supplies, our expensive sewerage systems, there has been an increase in the prevalence of diseases of the brain and nervous system independently of our schools, our factories, our libraries,

our churches, or entirely apart from those conditions and circumstances which are generally thought to give rise to nervous disorders.

The enormous growth of charity and philanthropy tends also in the same direction, by saving thousands of infant lives; our hospitals send out to renewed life and activity many who would otherwise have soon become helpless and died; improved medical skill builds up the weak and trains the imbecile, while an almost hot-house heat of the modern furnace rears the delicate children, which a century ago would have been virtually frozen out of existence in the barn-like rooms of our great-grandfathers, in which the tender lives struggled for existence. The survival of the fittest is brought about to some extent by a somewhat different process of selection from that which obtained a hundred years ago.

This has its advantages and its disadvantages. The pestilence that carried away its millions in a single epidemic not only took the weak and those unfit to survive, but it also, like the great fire consuming granite as well as pine, laid low the statesman and the great painter. The epidemic which killed its thousands of ill-favored, debilitated, and useless persons, hardly fit to live, also destroyed the most needed citizens. The inhumanity that let the children of the needy perish of neglect also failed to rescue, now and then, a genius or a great benefactor of mankind.

In redeeming the plague spots of our cities from the dangers of pestilential diseases, we have, at the same time, protected the more favored portions. But, on the other hand, we have by that very means reared many feeble and diseased individuals who otherwise would have per-

ished. For this, society gets its compensation in saving many persons whose brilliant minds make them invaluable to the world, in spite of their weak bodies, and in elevating its own moral standard. The fact is worth bearing in mind, though, that we thereby have more paralytics, more insane, and more persons of the neuro-pathic, or nervous, constitution, who react readily to external conditions unfavorable to health, and who easily became subject to the whole brood of nervous diseases.

I think that I am right, too, in saying that the prevailing type of nervous diseases has changed. The diseases of the imagination, which are cured by appeals to educated or uneducated superstition, by arousing the will, by stimulating the imagination, are disappearing, and are replaced by diseases dependent upon distinct disorders of brain nutrition, or indicating organic changes in the central nervous system. This circumstance shows both the high brain-tension of our age and the dangers of physical deterioration, two points of importance in our discussion of the school question.

The whole tendency of modern life is to physical strain and brain-worry, which are aggravated by a resort to all sorts of artificial stimulants; and, last of all bewildering devices, comes the telephone, to annihilate time and space. The very necessities of our civilization compel a high degree of activity and a high standard of accomplishment in some direction, with all the emotional strain of eager striving for success, or of repeated failure and disappointment. Our narrow streets and high buildings keep out the sunshine; our big cities devitalize the air, and bad sanitary arrangements in

most of our schools and houses make it still worse. The necessities of daily bread and butter drive children at an earlier age into occupations injurious to health.

In a recent number of the Boston Medical and Surgical Journal, there is quoted a lecture at the Parkes Museum of Hygiene in London, by Mr. James Cantlie, who says that it is impossible to find a pure Londoner of the third generation; that is to say, an individual whose two parents and four grandparents were all born and bred and continuously dwelt in London. It is rare to find an individual whose two parents and three out of four grandparents fulfil the above condition; and such an individual is a very miserable, ill-developed specimen of the human race, of stunted growth, low stature, small head, and feeble intellect, destitute of any faculty of enthusiasm or humor, and very liable to scrofulous disease. England, Mr. Cantlie tells us, is constantly pouring into London a stream of healthy folk, whose offspring degenerate, so that the race quickly ceases to be. The upper middle classes, the professional classes, who take a long annual holiday, and whose children are generally educated at public schools in the country, are, of course, to be excluded from this generalization.

A similar evil exists, more or less, in all great cities and large manufacturing towns, suggesting one of the most perplexing problems with which we have to deal, namely, the degeneration of the human race in crowded places, and what means we can take to counteract it. Do our schools help or hinder in this gigantic undertaking?

In the boys and girls of to-day we not only have a

more complex, delicate, sensitive organization to deal with, as compared with a century ago, but we have created a set of external conditions for them to live in, which is full of influences calculated to injure even a strong nervous constitution, much more a weak one.

That the difficulty of which I speak is a serious one, demanding our most earnest attention, no thoughtful person will deny. There are two ways of meeting it. The first will not find favor with any of us here. It consists in shielding the child or youth from every trial, and in carrying him over every hard place; in making everything easy for him, on the ground that he is not yet strong enough for the fight. The second foresees the struggles of life, and prepares the tender child, even, for them, by strengthening him in every possible way to meet and conquer them rather than evade them; at least, to carry life's successes with steadiness, or bear its reverses with equanimity.

The influence of our schools in producing this more nervous type of character, with an increased amount of diseases and disorders of the nervous system, and the present tendency of our methods of education in that regard, how far they add to the nervous debility or strengthen for the contests of life, are questions easy to ask, but, in my opinion, much less easy to answer. It is a problem which must be studied, not only in the classroom but also on the street, in the homes, at the theatre, in the dispensary-district, among the hospital out-patients, in the sick wards, behind the shop counters, among the factory looms. The question is often decided, I find, upon the evidence of a single case, or of two or three cases, and not seldom without sufficient

weight being given to all the possible explanations of the facts observed. For instance, a young man of twenty-two said that he graduated in his twelfth year, in a course of study usually finished at the age of sixteen, and that a few years later he became epileptic; that he had studied out of school more than the other boys, but that he got ahead of them chiefly by his brightness. Over-pressure in the schools has created epilepsy, was the immediate verdict. In the first place, are the facts as stated entirely correct? Secondly, if there was over-pressure in school, whose fault was it that it was allowed? did the teachers encourage or stimulate it? did the teachers protest against it, and the parents allow it? did the doctor advise against it, the teachers point out its un wisdom, and yet the parents insist upon a homicidal course, as happens sometimes? Was the case an illustration of that marvellous compensation in nature for failure in one direction by concentration of force in another, of which the epileptics Caesar and Napoleon were the most conspicuous examples, or, finally, did the epilepsy arise from an accident, by a blow on the head, by a fall, or by a severe mental shock, — in conditions subsequent to the school-life or independent of it, an explanation rendered quite probable by the fact that an older brother did the same as the younger in school and is quite well. I am still seeking for the correct answer to these questions, without any expectation of ever finding it.

To take another illustration, a young graduate of a high school and of a college for women breaks down with all the symptoms of the familiar name "nervous prostration," and is passed about from one doctor to

another as an interesting example of the pernicious results of the higher education of women. Another physician sees her and thinks that he recognizes a certain physiognomy of disease with which he is familiar. After a study of the family history, as well as of the individual, he believes that there has been simply the evolution of a natural law of development in the case, and that a vicious constitution or a brain not entirely right at the start has not only not been injured by the mental training, but that it has been improved (and might have been improved more), that the breakdown is less disastrous than it would have been but for the schools and college. One set of doctors concludes that women have too much of study; another thinks that they have not enough or at least not of the right kind. Who shall decide? There certainly are not statistics available to settle the matter, if they ever can be got, and then there would come the inquiry, how were the statistics prepared?

The literature of the subject is abundant, but much of it bears the marks of hasty generalization or of prejudging the case. I will mention one recent report of this character, which has had great influence in London, because of the wide reputation of the author in another field of knowledge, but where the opinions advanced were confessedly formed before investigation, and where a statistical table of the prevalence of headache was soberly prepared and offered as scientific evidence, by asking those children to raise their hands who had headache in certain described localities.

As regards the influence of our schools on the health of the community, as shown by an increased prevalence

of disorders of the nervous system, the question presents itself to me in two different aspects: first, as affecting persons attending school; and secondly, in the effect of the school-training as manifested in later life.

At the outset, it should be said that there are schools and schools, and that there are teachers and teachers. Even in Massachusetts, a State which seems to me, in respect of its schools, to be living on its past laurels, schools may be found in commendation of which I could have very little to say. There are others for which I should suggest hardly a single criticism. The fresh air, broad sunshine, and simple habits of country towns may compensate for much that is bad in methods and amount of study. The constant hurry and excitement of a crowded metropolis may render the adoption of the wisest system of education a matter of the greatest difficulty. It is utterly beyond the power of the most accomplished superintendent, the ablest and most painstaking supervisors, the most conscientious teachers, to devise and carry out any plan of instruction which will wholly counteract the bad influence of conditions acting constantly and unfavorably upon the physical health of the pupils. The subject is a large one, and I shall endeavor to stimulate thought and effort, rather than to solve a problem. What I shall have to say will apply to Boston schools, because my time for this discussion is limited, and because I have less exact information about other schools. It is offered simply for what it is worth, as the result of the observations and experience of one man.

The task of the schools is no easy one. They must furnish a course of instruction flexible enough, not only

to suit the brilliant, the clever, those of average or fair ability, and the dull or even stupid, but also to be adapted to the sound and the unsound, the well and the ill. Different grades of mental capacity may be readily accommodated by advancing certain pupils and putting back others. Different standards of soundness or health can be provided for at best only imperfectly except with the coöperation of parents.

Among the conditions of departure from health, which one sees in the schools, the most important is the neuro-pathic, or nervous, constitution, existing in all degrees of intensity. In its pronounced form, it is closely allied to the well-marked functional diseases of the nervous system, and, at the critical periods of life, may readily develop into them. It is congenital, or due to early interference with the normal development of the brain by injury or disease, and it may be enormously aggravated from faulty training and bad habits of life. It shows itself in infancy and childhood by irregular or disturbed sleep, irritability, apprehension, strange ideas, great sensitiveness to external impressions, disagreeable dreams and visions, romancing, intense feeling, periodic headache, muscular twitchings,—conditions all of which, in my experience, have been attributed to the schools. There is often excessive shyness or bravado, introspection and self-consciousness. The imitative and imaginative faculties may be quick. The affections and emotions are strong. The natural feelings easily become disturbed and perverted. The passions are unduly a force in the character which is commonly said to lack will-power.

Self-discipline and self-control are acquired only with

great difficulty. The memory is now and then phenomenal. There is a ready reaction to external circumstances, even to the weather, by which the individual becomes easily a little exhilarated or somewhat depressed. They are apt to be egotistic, suspicious, and morbidly conscientious. Slight physical ailments, hardly noticed or rapidly recovered from in sound children, leave on them a long or lasting impression. They become neurasthenic, hypochondriacal, or nervous invalids, so called, and they break rules or disregard established customs with less cause or provocation than other persons. They lack stability, or have narrowed limitations of intellectual energy, in quality or quantity.

To the nervous temperament belong social and intellectual gifts and graces, originality, intensity, poetry, art, philanthropy, without which we should be great losers. Within reasonable limits, the nervous temperament, if fairly well trained, is a great benefit to society and the world. Of its extreme development we have the most conspicuous examples in our great cities. We see many such children in our schools, and we must provide for them in the best manner possible. They need not only as much care as other children, but far more, as lack of proper training results more disastrously to them than to others.

Next in importance come those children who have inherited weak bodies, or who have acquired physical weakness as a result of illness or injury; those who are sent back to school—a very common fault—before the strength has been fairly regained after infectious and other diseases; and finally, the large number who

suffer from disabling maladies of too obscure a character, or of too light a degree of severity, to be detected by the teacher or parent. Chorea, commonly called St. Vitus's dance, to mention a striking instance, is a general disease, associated with cerebral symptoms that are often overlooked, and with muscular twitchings which are unmistakable. It frequently occurs with sleeplessness, irritability, headache, inability to apply the mind, and slight loss of flesh, as the only noticeable symptoms. Sometimes the mother observes a simple change of character, that the youth becomes childish, the child babyish. In this stage or degree the case is quite likely to be thought one for discipline, whereas rest and medical treatment are indicated. Not seldom the parent, oftener the father than the mother, speaks of the idleness, stupidity, peevishness, obstinacy, untruthfulness, want of aptitude and receptivity of a child—terms which to them have only a mental or a moral bearing, while the physician sees that they depend upon conditions of disease which have no ethical significance whatever.

In the city of Brussels—the only place, beside Paris, where there is thorough medical inspection of schools—it is claimed that by that means this large class of children receive proper care, and it is asserted that the same results cannot be got in any other way. Some of them must be taken from school altogether; others should remain in school only a part of the school hours, or do nothing some of the time, if it is best for them to stay in school to keep out of the street, and many get on by dropping some incompatible or embarrassing branch or branches of study. The careful

oversight of many of our Boston teachers partly reaches this evil. It cannot be better illustrated than by reading a letter from one of them to a parent who, up to that time, had not observed anything wrong about her child. This girl came to the City Hospital a well-marked example of the neuropathic constitution, and at the time referred to had the mild form of chorea, for which she needed at least six months' careful attention to her health.

The letter is as follows:—

DEAR MRS. ———:

I am very sorry Mary is far from well. She was nervous enough before she was sick with her cold, but now she is so much worse. I think the best thing for Mary will be to leave school for a while and play out of doors. Keep her in the sunshine all you possibly can, and let her go out every day, no matter what the weather is. The close confinement of the school-room is very bad for any one so nervous. She was such a smart girl I am very sorry to have this happen. It is solely on her account that I recommend this measure, but I think you will find it will be for the best for her to drop all books for a while, and not study at all.

You need not fear but what she will know enough and learn enough by and by.

Perhaps if she could go away for a few days the change of air might help her.

Of course you must do as you think best.

Yours respectfully,

Parents often bring their children to the hospital with just this sort of a statement, showing how careful of their pupil's health some of the teachers must be, to detect evidences of disease before even the mother's watchful eye sees them.

The children of the well-marked neuropathic constitution not only cannot live at the high pressure common to our age, nor even at a moderate pressure, but everything must be arranged for them on a low pressure scale. They are capable of only a limited amount of work, and easily break down if that limit is exceeded. It is simply impossible for them to go through the full routine of school work, and many of them, for that reason, drop out of the primary or grammar schools, without attempting the strain of the high schools; and yet they need such training as they are capable of even more than other children.

This class of children, of all degrees of mental and physical limitations, together with those who are ill or not sufficiently recovered from acute diseases, we will pass over for the present, and consider the influence of the schools on children and youths of fair physical health and moderate mental brightness.

It is not necessary, before this audience, to argue the value of physical health. If Mr. Mill insists that the man who aspires to be a teacher of his fellowmen must suffer from ill health, we simply answer that Mr. Mill would have taught more healthy doctrine, would have done more good, if he had not suffered so much from the headache and neuralgia and dyspepsia of overwork. Huxley's view is sounder, — that the successful men in life, in the long run, are those who have stored up such physical health in youth that they can, in an emergency, work sixteen hours a day without suffering from it.

Do the children of the public schools come up to a reasonable standard of health? — I do not mean the high standard of Huxley. I think that they are far

below it. Pale faces, languid work, poor appetite, disturbed sleep, headache, and what is vaguely called nervousness, are more common among them than they should be among children of their ages. I doubt whether there is an exaggerated prevalence of manifest or well-marked diseases of the nervous system among them. If due to the school drill, my impression is that they come for the most part later in life, after the children have left school, and because of constitutions weakened during the school years, instead of strengthened, as they should be. The causes of this serious evil lie partly in matters which can be, and should be, corrected in the schools, but fully as much, if not more, in conditions for which the home and the parents are responsible.

The definite defects or evils in our school system seem to me chiefly due to, first, over-pressure beyond the age or strength of the pupil; secondly, to bad air; and thirdly, to lack of physical exercise. In the first place, as to the age and hours of study of the pupils. There should be none admitted under the age of five. Of course, that is not a prevalent fault in Boston, as there are only half a hundred so young, out of a total of 52,000 of all ages, in that city. There are seven or eight thousand, a varying number, under the age of seven. For these children five hours' school work a day, even with the two hours' interval for dinner, seems to me altogether too much. From the age of seven to thirteen, I think that there should be no study outside of school, except possibly a review of some of the day's work for the children from ten to thirteen years old; and, after that age, not more, as a rule, than an hour of home study until the end of the high school or Latin

school course. Naturally, some youths cannot do so much as that; a certain number can do more with safety. I am aware that many of the teachers, perhaps most of them, or nearly all of them, endeavor to correct the tendency of conscientious pupils to study too much at home; but that does not entirely meet the difficulty, which can only be done by placing definite limits of age and hours of study for the various classes. In the primary schools, and in the lower three classes of the grammar schools, where there is supposed to be no home study, and the teaching is so largely independent of books, naturally only a limitation of school hours is needed according to age, provided the present rule not to study at home is obeyed. Of course, if children begin full study in the schools at an age so early as to do harm from over-pressure, the evil not only lasts through the whole school life, but it is cumulative, and is sure to more or less affect them as long as they live.

Competitive examinations for prizes or rank, the privilege of skipping classes by rapid promotion, and the rehearsals for annual festivals, have seemed to me in some cases to have done harm. Perhaps it will be possible to so regulate them as to retain the incentive for good work and not put too heavy a strain on children of sensitive and active minds. Single promotions are dangerous enough, and, I think, should be allowed only with the exercise of greater care than is common now. But what have I to express for double and triple promotions, for allowing an ambitious girl to skip at one leap two, even three, classes? Nothing but unqualified disapproval.

The fact is too often overlooked that intellectual

brightness in children may be only a symptom of illness. At all events, excitable, precocious children are not infrequently stimulated to overwork, when their proper place is in the doctor's hands.

Next to beginning school work at too early an age, by far the greatest direct evil, or sin of commission, in our schools, is bad air, especially where the school-rooms are over-crowded, as many of the primary schools are. Its influence in spreading infectious diseases is not to be overlooked, but it is ten times more injurious to the nervous system, from undermining the constitution by a slow poison. It causes headache, weariness, impaired appetite, enfeebled digestion, fretfulness, irritability, with a whole train of evils, for which over-pressure in study is falsely accused. At the same time that this evil is remedied, means should be taken to avoid the inequality of temperature, especially in the larger school buildings, which is, for the most part, a matter of coal and care. In the summer time, it seems to me that the schools should always be dismissed when the temperature exceeds 82° Fahr. I know that pure air in large, crowded buildings is costly, and I suppose that proper ventilation in our schools would involve an additional annual expense of, perhaps, ten or twenty thousand dollars; but the outlay would be more than repaid, and for the present condition there is not a shadow of excuse.

Among the home influences acting unfavorably, absence of sunlight in narrow streets, impure air, and insufficient diet are in some cases, and to a certain extent, unavoidable. An unwise diet, or injudiciously selected, is more common, even among those who can afford for their children an abundantly nutritious fare.

A great part of the harm from bad ventilation is loss of appetite, for which the child craves stimulants, and the parent yields to the wish for tea and coffee, which only enormously aggravate the evil. I rarely see at the hospital a child from the public schools whose health has not been injured by these stimulants, and then comes again the complaint of over-pressure. Cigarettes are a source of harm chiefly in the private schools, but sometimes in the public schools also.

In the high schools, the pupils are at an age when abundant and nutritious food is needed at intervals of not more than four or five hours. How often do we hear carelessness or inattention in this respect excused by the parent or teacher, on the ground that the child is not working, only going to school, and so not in need of a full diet; whereas the fact is just the opposite, that brain-work is the most exhausting kind of work, to meet the demands of which the brain should be thoroughly well nourished by abundant, nutritious food. The long sessions and the great distance of the schools from the homes prevent sufficient nourishment for many of the nearly two thousand pupils in the high and Latin schools, and again there arises impaired health for which over-pressure is the assigned cause.

Toward the latter part of the grammar school life, and during the high and Latin school period, the tired backs and heads needing fresh air and exercise get still more tired from sitting at the piano; outside duties and pleasures are allowed to overweary, more especially the girls, or to break in upon the hours of sleep, and this oftener does harm in my opinion than over-study; at least, social cares, and dissipations, and accomplish-

ments, cannot be safely combined with full school duty to any great extent; one or the other must be curtailed. The strain comes, too, at a time of active physiological development, when especial care should be taken that there should be abundant rest and sleep, with plenty of nutritious food and healthy out-door life. I have seen enough to convince me that want of proper care at this time does much harm, particularly in girls, that never can be fully remedied in later life; and yet the too ready resort to the bed or the lounge for slight ailments in girls and women seems to me to be creating invalidism, the blame of which is often laid to over-pressure or to inherent weakness of the female sex. The boys play and romp and have their military drill, but the girls have not the opportunity for that vigorous physical exercise which they need fully as much as the boys. Being more sensitive and emotional by nature, we deliberately bring them up so as to exaggerate these qualities and make them less strong and less self-dependent in later life. By the last record there were six thousand two hundred and twelve girls thirteen years old and over in our Boston public schools. Most of them who are in good health are better for continuous work; many who are subject to occasional disturbances would do best to disregard them to a certain extent, but a large number cannot do so with safety. One high school teacher in the western part of Massachusetts states that the girls in his school are excused from work simply at their request, and that, speaking from general impressions, he should say that they are absent from school one-tenth of the time. I doubt whether accurately kept statistics would fully bear out his statement

as to the amount of absence from school of the girls. If the fact is as reported, I am confident that harm is done as well as good, but that more care is needed in this respect than is common, I am quite sure.

If there is any defect or imperfection in the eyes, or ears, or lungs, or heart, or anywhere, as is not unfrequently the case, there is almost always a sensitiveness of the nervous organization, and a diminished capacity for work which renders especial care quite important. With an imperfect eye, the brain works harder to secure perfect vision. It is just the same with any other imperfect organ in performing its proper function, and hence undue weariness. These anatomical or physiological defects are so common, particularly in the eye, and they so often lie at the bottom of impaired health and nervous disorders, that it would be well for all parents to know whether their children are free from them, certainly before they are put to the strain of the higher courses of study, involving prolonged and concentrated mental effort, and preferably before the grammar school age.

The two diseases of the nervous system most commonly attributed to the schools are chorea or Saint Vitus's dance and epilepsy. I have never yet, however, seen one case of either disease, the causes of which did not seem to me to lie more probably in accidents or injuries to the brain, or, at least partly, in circumstances and conditions outside of the schools. I do not mean to say, however, that there are not schools which may be blamed even to this extent. It would not surprise me, if, on a careful search, several such were found.

When our first secretary of the State Board of Edu-

cation made such vast improvements in our public schools, he got many of his best ideas from Germany; and if we should go to Germany now, we should find that the Germans are just as far ahead of us at the present time as they were then, and in this respect chiefly, that, in their best schools, a system begun and most thoroughly carried out in Frankfort and Berlin, all the pupils are trained just as regularly and just as carefully in gymnastics, in physical exercise, both girls and boys, as in arithmetic and geography. This is a thousand times better than all the rest cures, and mind cures, and everything of the sort.

There is one immense influence of our public schools which I have been surprised to find quite generally ignored, namely, its great power in training the mind and developing character. It teaches self-respect and self-control, and furnishes internal resources for the struggles of after life, which seem to me one of the chief safeguards of society. Hard work is needed by nearly all of us. There are few persons who are not compelled, at some time in their life, to learn the necessity of not only doing disagreeable things, but of doing them easily, and home discipline is apt to be too defective in these points. If it were not for the public school training, thousands of children would grow up like weeds or Topsy's, their fathers and mothers being too busy inculcating the filial duties to remember the obligations of parents to their children.

There is, without doubt, overstudy at home in some cases, and harmful overstudy, and there can be no system devised which will make it impossible. The amount of study which may be given to the lessons in

any but the lower grades in the schools is practically without limit, if the student aims for perfect marks or is interested to go to the bottom of the subject, and then he simply exhausts himself. If this is done, it is not necessarily the fault of the schools, but oftener of the individual for persisting in overwork, or of the parent for encouraging or allowing it. All that the teacher can do, given a not excessive course of study, is to advise and warn, which certainly is freely done in some, at least, of the Boston schools.

With regard to the diseases and disorders of the nervous system in adults, attributable to the schools, I have seen enough to convince me that many constitutions are impaired in the schools, and chiefly from causes which I have already pointed out. I think, however, that at least three-fourths of the causes of nervous exhaustion and nervous disorders generally lie outside of the schools, in natural physical disabilities, in unwise methods of living, especially in breathing too little fresh air, in neglect of physical exercise, in not heeding early symptoms of disease, too often in the resort to the habitual use of stimulants and narcotics, including the excessive use of tea, coffee and tobacco, those curses of nervous people. The functional diseases and disorders which make life wretched, without killing, are at least four times as common among women as among men, and the, to me, foolish conclusion is drawn from that fact that women are unfit for hard work, and responsible duties, and severe mental training. On the contrary, they are driven by their few resources to those branches of industry involving the most worry, the worst air, the least pay, and the great-

est anxiety, and they are denied the opportunity of that vigorous physical exercise and sound mental discipline without which men know perfectly well that they would be neuralgic, dyspeptic and suffering from all that is implied in the expressive word "nerves." Physical defects and imperfections are more trying to women than to men, and more is demanded of them in the way of maintaining a respectable appearance and living. What they need most is more, rather than less training; perhaps in some respects better training of the kind such as the public schools give, more colleges for women, more physical exercise, more knowledge how to take care of themselves, more opportunities in every direction. If women had all these, we should soon hear and see much less of the so-called nervous prostration and of the evil effects of over-pressure. Wear and tear in their work is greater than in men's work, and they need that higher education which is fast teaching the few to whom it is accessible how to live and keep their health. The colleges for women already established, as I read the evidence, have shown conclusively that the firmer mental balance which women get thereby is already telling in improved physical health. We do not see the graduates of them working all day, studying in the horse cars, snatching out a book between the acts at the theatre, and reading until midnight, kept up by tea, in order to converse intelligently about the last novel. In face of the many obstacles against which women in general have to contend, they must work harder, with greater worry and with more disappointments than men. There are more conditions necessary to avoid failures in women. Of course they break down earlier and oftener than men.

The physician sees constantly most lamentable breakdowns in young men and in young women who are struggling, against great difficulties, for an education — probably more, in proportion to the whole number, among young women than among young men, because the young women are in a field of effort which has not yet entirely passed the experimental stage, and they are still learning how much they can do and in what way they can best do it. In denying themselves sufficient recreation, fresh air, physical exercise, rest, sleep, food, in working late at night for the money to pay a debt, buy a coveted book, or provide the daily dinner, in failure to recognize physical limitations of health and strength, in the hurry to do five years' work in four or three years, in the wear and worry of outside anxieties, they often deliberately, often ignorantly, run great risks, as a result of which there must be a certain proportion of ruined health. Of a hundred brains strained to the average limit of tension many must break, but the fault, or the mistake, is, for the most part, with the individual.

In the present stage of the question of the higher education of women, while originality of thought, independence of social prejudices, activity and receptivity of mind, rather than soundness and stability of constitution, must characterize the young people who take it up, it is quite natural that the nervous or neuropathic temperament should predominate among them; that there should be many of unstable equilibrium, of sensitive physical organization, who break down easily whether they study or not. My own opinion is that even for these — I would rather say especially for these

—the higher education is a conservative, rather than a destructive, force. But they must learn that they need, in their management of themselves, more care and more self-control than others.

By the last census there were, within the ages of active work, from sixteen to fifty inclusive, in the state of Massachusetts, 52,483 more women than men. 6,413 of them taught school, as compared with 923 men, so that the question has already become a practical one. After the great Boston fire, fifteen years ago, it was perfectly pitiful to see how few useful and remunerative things the young women thrown out of employment could do.

I shall naturally be asked what can be done so far as our public schools are concerned? I am not one of those optimists who think that a legislative enactment or a commission or a board with a chairman and a secretary can relieve all the difficulties of the world. I am quite sure that skilled and experienced medical opinion ought to be more brought to bear upon these questions than it now is; but that would involve a great deal of time and much discussion.

What is there which can be done at once? In the first place, as I have already intimated, vastly greater injury is done to the nervous organizations of children at home than in the schools, and the greatest part of this comes from ignorance. The readiness of mothers to carry out sensible advice regarding their children's health convinces me that much can be done by systematic attempts to instruct them.

In the second place, the air of the schools should be made better at whatever cost.

Thirdly, means of physical exercise should be provided for all weathers, especially for the girls, who have not now even the defective advantages possessed by the boys in that respect, and as regular hours should be devoted to gymnastics as to mental training.

Fourthly, regarding the teachers. Under the improved methods of instruction, with fewer text-books for their pupils to memorize, the work is much harder for them than before. The slow poison which the children breathe in for a few years from the badly ventilated class-rooms, at a time of life when there is naturally a superabundance of the tendency to healthy processes, and a great power of throwing off all sorts of injurious influences, the teachers must breathe, year in and year out, at a time of life when they have little superfluous strength, and, if anything, are almost daily overtaxing what they have. The tenure of their positions should be as free from worry as is compatible with good service, and they should, like the professors at Cambridge, have a year's furlough at stated intervals, without losing their places.

On these four points, I think that there can be no real difference of opinion among competent and thoughtful persons who have given the subject sufficient attention.

With regard to the hours of study for children of different ages, I am aware that there will be a wide divergence of views among those who have carefully considered the matter. I can only repeat my own conviction that full school hours are begun at too early an age in the Boston public schools, and that only evil can come of it. I believe, too, just as strongly, that the fact has been

demonstrated that children under fourteen years of age cannot bear much, if any, more than an hour's continuous study profitably, perhaps not without harm, and that for them each hour's brain-work should be followed by ten or fifteen minutes in the open air in fair weather, and exercise or recreation in all weathers. This is accomplished to a certain extent and for pleasant days by our recesses, but I am informed that a suggestion is made, which I earnestly hope is not the case, to abolish those very useful breathing spaces.

For children of fair strength and average ability, living under reasonable conditions of health, in the school and out of the school, is the present course of study in our public schools in Boston one to cause over-pressure and disorders of the nervous system, provided the pupils begin at the age of seven, or do half-time study from six up to that age, with few hours and little but object lessons from five to six?

My very decided opinion is that there is harmful over-pressure, and that there is room for further improvements in the direction in which I have intimated that so much has already been admirably done of late years. I am quite sure that bright children are promoted too rapidly, and that the number of studies can profitably be diminished for nearly each day's calendar, in the upper classes of the grammar schools and in the high and Latin schools.

I will repeat my opinion already stated, that the greater part of the ill-health commonly attributed to the schools arises in conditions for which the responsibility belongs to the home and to the parents, perhaps in a certain degree to social customs and to society at large.

The correction of this difficulty is no easy matter. In some cases it is beyond the parents' power to do otherwise than they are doing; foolish subserviency to what they consider fashion controls many more, and the work of educating others up to a full sense of their obligations to their children, and to a knowledge how to do what is best for them, is one requiring time and patience.

The greatest difficulty will be found in attempts to adjust the school work to different degrees of health and strength, especially to the different manifestations of the nervous constitution. How far this should be done by the parents, how far by the school authorities, at what age different children should be allowed to go to school, how far the school course should be modified to suit their capacity, who shall decide what studies shall be dropped, and when certain pupils shall leave school for a while, — in a word, to what extent the training of fifty thousand children shall be individualized, — these are all most important and interesting questions which must be met in a variety of ways.

Whether or not the schools are adding to the total amount of nervous instability, and disease or disorder of the nervous system in the community; whether or not the confessed injury done by the schools is counterbalanced, or more than counterbalanced by the enormous good which they do, one fact is beyond question, namely, that the schools do not do all they can, and ought, to counteract the tendency of the age to all sorts of physical ills arising from the high-pressure rate of living, the high social tension which we see everywhere. Can we afford, simply as a matter of social and political economy, to allow them to do any less than their

utmost in this respect, when we consider that at any given time one-eighth of the population of the city is in the public schools, and that there are comparatively few others who at some time have not been, or will not be, under their care?

In the city of Brussels each school is visited weekly by a trained medical inspector, who examines the school-rooms for suggestions regarding improvement in construction, ventilation, heating, etc. He looks after the condition of the air, drains, and all matters affecting the health of the pupils. He sees that the temperature of the rooms has been recorded four times a day, and he compares for himself the temperature at different places, — near the floor, on a level with the pupils' heads, and toward the ceiling. He prescribes the various means and methods of exercise, including the out-door gymnastics; directs the walks, excursions, and instruction in swimming, carefully looking over each child to see whether he or she is strong enough for the full school routine in these respects as well as in the matter of studies. If, in summer, the temperature exceeds 28° C. or 82.4° Fahr., he dismisses the school, and may order pleasant walks in place of the regular school duties. He is to superintend the physical development of the pupils, and to advise against too fatiguing methods or courses of study. He keeps records, taken at regular intervals, of the height, weight, general condition, etc. of each pupil, which constitute a sort of life history, to be carried home and kept by each one upon leaving school. He instructs the teacher how to recognize infection-diseases in their early stages, and sees that the regulations regarding them are enforced.

He devotes especial care to the weak and sickly children, to see that they get the best possible result from the school training, supplying to them medicines, chiefly tonics, free of cost. Children under fourteen years of age, after each three-quarters of an hour's study, have fifteen minutes for recreation, which must be in the open air, when the weather allows it, and this the medical inspector regulates. The physical examinations of the pupils include particularly the eyes, any defects in which are corrected, so far as is possible ; and the dentist for the schools treats, on an average, about ten pupils each school day.

In Frankfort-on-the-Main there have been buildings for gymnastic exercises connected with the public schools, but entirely separate from them, and supported by the public, for more than thirty years. There are eighteen such in the city, beside a number of large halls for gymnastics in school-buildings and out-of-door grounds, arranged with the usual appliances of a gymnasium. There are more than a hundred teachers of physical exercises. The children are also taught swimming, and take numerous walks and excursions, under the guidance of teachers, for pleasure and instruction. There is not the same systematic medical inspection as in Brussels, but the pupils are examined by physicians, as required, to guard against infection-diseases, and to provide lowered standards of work, in studies and in physical exercises, for those who are not sound in mind or in body, as the case may be. Each hour's study is followed by several minute's recreation, out of doors if the weather permits. Once a year the pupils of the public schools have a day's excursion into the country,

and shorter pleasure trips are also made, from time to time, usually Saturdays.

In the long summer vacation, nearly two hundred feeble pupils are selected for a month's visit among the hills and fields — this, however, is at private cost, by subscription, and is under the direction of persons competent to look after the boys and girls, and to instruct them in general deportment, diet, and the laws of health.

The Germans and the Belgians tell us not only that they are satisfied with the results, but that they are demanding from the authorities further advances in the same direction; that they spend more money on their schools, but believe that they shall thereby lessen the expenditure for prisons and poorhouses and hospitals and jails.

